What is claimed is:

1. An OFDM demodulator for receiving an OFDM signal generated from a plurality of subcarriers modulated with transmitted data, said OFDM demodulator comprising:

a Fast Fourier Transformer (FFT) operable to convert the OFDM signal into a FFT converted signal which comprises data carriers and pilot carriers;

a pilot carrier detector operable to detect the pilot carriers from the FFT converted signal;

a phase difference calculator operable to calculate phase differences between each of the detected pilot carriers and each of known pilot carriers;

a phase change amount calculator operable to calculate, based on the calculated phase differences, an amount of change of phase rotation between each pair of adjacent pilot carriers with respect to a carrier frequency and a sampling frequency; and

a phase corrector operable to correct a phase of each of the data carriers, based on the calculated phase differences and the amounts of change.

2. The OFDM demodulator according to claim 1, further comprising a data demodulator operable to demodulate the data carriers after phase correction to reproduce the transmitted data.

3. An OFDM demodulation method for receiving an OFDM signal generated from a plurality of subcarriers modulated with transmitted data, said OFDM demodulation method comprising:

converting the OFDM signal by Fast Fourier Transform (FFT) to generate a FFT converted signal which comprises data carriers and pilot carriers;

detecting the pilot carriers from the FFT converted signal;

calculating phase differences between each of the detected pilot carriers and each of known pilot carriers;

calculating, based on the calculated phase differences, an amount of change of phase rotation between each pair of adjacent pilot carriers with respect to a carrier frequency and a sampling frequency; and

correcting a phase of each of the data carriers, based on the calculated phase differences and the amounts of change.

4. The OFDM demodulation method according to claim 3, further comprising demodulating the data carriers after phase correction to reproduce the transmitted data.

5. An OFDM transmission system for transmitting and receiving an OFDM signal, said OFDM transmission system comprising an OFDM transmission apparatus and an OFDM receiving apparatus,

wherein said OFDM transmission apparatus comprises an OFDM modulator comprising:

a modulator operable to assign pilot carriers to data carriers and modulate the data carriers with transmitted data to produce transmission subcarriers; and

an inverse Fast Fourier Transformer operable to convert the transmission subcarriers into the OFDM signal,

wherein said OFDM receiving apparatus comprises an OFDM demodulator comprising:

a Fast Fourier Transformer (FFT) operable to convert the OFDM signal received by the OFDM transmission system into a FFT converted signal;

a pilot carrier detector operable to detect the pilot carriers from the FFT converted signal;

a phase difference calculator operable to calculate phase differences between each of the detected pilot carriers and each of known pilot carriers;

a phase change amount calculator operable to calculate, based on the calculated phase differences, an amount of change of phase rotation between each pair of adjacent pilot carriers with respect to a carrier frequency and a sampling frequency;

a phase corrector operable to correct a phase of each of the data carriers, based on the calculated phase differences and the amounts of change; and

a data demodulator operable to demodulate the data carriers after phase correction to reproduce the transmitted data.

6. An OFDM demodulator for receiving an OFDM signal generated from a plurality of subcarriers modulated with transmitted data, said OFDM demodulator comprising:

a separator operable to separate the OFDM signal into the plurality of subcarriers which comprise data carriers and pilot carriers;

a pilot carrier detector operable to detect the pilot carriers from the plurality of subcarriers;

a phase difference calculator operable to calculate phase differences between each of the detected pilot carriers and each of known pilot carriers;

a phase change amount calculator operable to calculate, based on the calculated phase differences, an amount of change of phase rotation between each pair of adjacent pilot carriers with respect to a carrier frequency and a sampling frequency; and

a phase corrector operable to correct a phase of each of the data carriers, based on the calculated phase differences and the amounts of change.

7. The OFDM demodulator according to claim 6, further comprising a data demodulator operable to demodulate the data carriers after phase correction to reproduce the transmitted data.

8. An OFDM demodulation method for receiving an OFDM signal generated from a plurality of subcarriers modulated with transmitted data, said OFDM demodulation method comprising:

separating the OFDM signal into the plurality of subcarriers which comprise data carriers and pilot carriers;

detecting the pilot carriers from the plurality of subcarriers;

calculating phase differences between each of the detected pilot carriers and each of known pilot carriers;

calculating, based on the calculated phase differences, an amount of change of phase rotation between each pair of adjacent pilot carriers with respect to a carrier frequency and a sampling frequency; and

correcting a phase of each of the data carriers, based on the calculated phase differences and the amounts of change.

9. The OFDM demodulation method according to claim 8, further comprising demodulating the data carriers after phase correction to reproduce the transmitted data.

10. An OFDM demodulator for receiving an OFDM signal generated from a plurality of subcarriers subjected to differential modulation with transmitted data in frequency direction, said OFDM demodulator comprising:

a Fast Fourier Transformer (FFT) operable to convert the OFDM signal into a FFT converted signal which comprises data carriers and pilot carriers;

a pilot carrier detector operable to detect the pilot carriers from the FFT converted signal;

a phase calculator operable to calculate a phase for each of the pilot carriers;

a phase change amount calculator operable to calculate, based on the calculated phases, an amount of phase change between each pair of adjacent pilot carriers with respect to a sampling frequency; and

a phase corrector operable to correct a phase of each of the data carriers based on the amounts of phase change.

11. The OFDM demodulator according to claim 10, further comprising a differential demodulator operable to subject the data carriers after phase correction to differential demodulation to reproduce the transmitted data.

12. An OFDM demodulating method for receiving an OFDM signal generated from a plurality of subcarriers subjected to differential modulation with transmitted data in frequency direction, said OFDM demodulating method comprising:

converting the OFDM signal by Fast Fourier Transformer (FFT) to generate a FFT converted signal which comprises data carriers and pilot carriers;

detecting the pilot carriers from the FFT converted signal;

calculating a phase for each of the pilot carriers;

calculating, based on the calculated phases, an amount of phase change between each pair of adjacent pilot carriers with respect to a sampling frequency; and

correcting a phase of each of the data carriers based on the amounts of phase change.

13. The OFDM demodulating method according to claim 12, further comprising subjecting the data carriers after phase correction to differential modulation to reproduce the transmitted data.

14. An OFDM transmission system for transmitting and receiving an OFDM signal, said, OFDM transmission system comprising an OFDM transmission apparatus and an OFDM receiving apparatus,

wherein said OFDM transmission apparatus comprises an OFDM modulator comprising:

a modulator operable to assign pilot carriers to data carriers and subject the data carriers to differential modulation with transmitted data in frequency direction to produce transmission subcarriers; and

an inverse Fast Fourier Transformer operable to convert the transmission subcarriers into the OFDM signal,

wherein said OFDM receiving apparatus comprises an OFDM demodulator comprising:

a Fast Fourier Transformer (FFT) operable to convert the OFDM signal received by the OFDM transmission system into a FFT converted signal;

a pilot carrier detector operable to detect the pilot carriers from the FFT converted signal;

a phase calculator operable to calculate a phase for each of the pilot carriers;

a phase change amount calculator operable to calculate, based on the calculated phases, an amount of phase change between each pair of adjacent pilot carriers with respect to a sampling frequency;

a phase corrector operable to correct a phase of each of the data carriers based on the amounts of phase change; and

a differential demodulator operable to subject the data carriers after phase correction to differential demodulation to reproduce the transmitted data.

15. An OFDM demodulator for receiving an OFDM signal generated from a plurality of subcarriers subjected to differential modulation with transmitted data in frequency direction, said OFDM demodulator comprising:

a separator operable to separate the OFDM signal into the plurality of subcarriers which comprise data carriers and pilot carriers;

a pilot carrier detector operable to detect the pilot carriers from the plurality of subcarriers;

a phase calculator operable to calculate a phase for each of the pilot carriers;

a phase change amount calculator operable to calculate, based on the calculated phases, an amount of phase change between each pair of adjacent pilot carriers with respect to a sampling frequency; and

a phase corrector operable to correct a phase of each of the data carriers based on the amounts of phase change.

16. The OFDM demodulator according to claim 15, further comprising a differential demodulator operable to subject the data carriers after phase correction to differential demodulation to reproduce the transmitted data.

17. An OFDM demodulating method for receiving an OFDM signal generated from a plurality of subcarriers subjected to differential modulation with transmitted data in frequency direction, said OFDM demodulating method comprising:

separating the OFDM signal into the plurality of subcarriers which comprise data carriers and pilot carriers;

detecting the pilot carriers from the plurality of subcarriers;

calculating a phase for each of the pilot carriers;

calculating, based on the calculated phases, an amount of phase change between each pair of adjacent pilot carriers with respect to a sampling frequency; and

correcting a phase of each of the data carriers based on the amounts of phase change.

18. The OFDM demodulating method according to claim 17, further comprising subjecting the data carriers after phase correction to differential demodulation to reproduce the transmitted data.